

Update on Unmanned Aerial Systems (UAS) at ARM Southern Great Plains (SGP)

Nicki Hickmon
SGP Site Manager

Operating UAS at SGP - SGP Site

SGP Central Facility (CF)

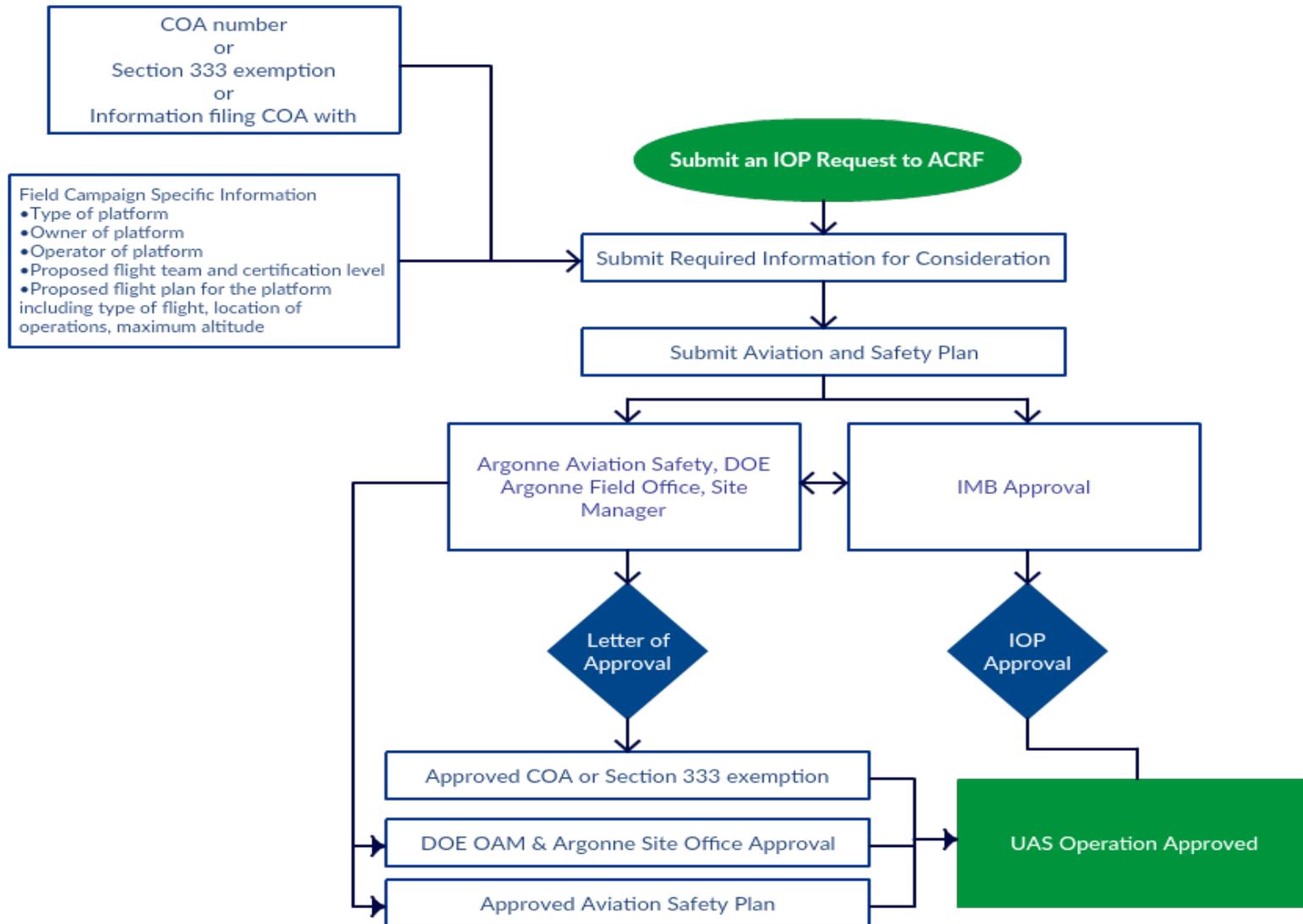
36° 36' 18.0" N, 97° 29' 6.0" W

Typical Areas of Operation

- South of Aerosol Observing System (AOS) & West of Raman Lidar
- South of alfalfa field



Operating UAS at SGP - Approval Process



Approval of an ARM-wide Aviation Safety Plan will alter the implementation slightly



2016 Campaigns

- CLOUDMAP TEST FLIGHTS



- EPIC CAL/VAL



2017 Campaigns - CLOUDMAP

- 4 year campaign
- University collaboration to develop capabilities that will allow meteorologists and atmospheric scientists to use unmanned aircraft as a common, useful everyday tools
- **OSU** 4 platforms (payload, loiter speed, ceiling)
 - MARIA fixed wing (15 lbs, 60 kts, 10,000')
 - Pitot probe, PTU, IMU, Hot-wire, TAMDAR Edge, Dropsondes (x10)
 - Skyhunter fixed wing (5 lbs, 25 kts)
 - Pitot probe, PTU, IMU, EO/IR
 - Iris+ rotor (.75 lbs)
 - Wind wane, Pitot probe, PTU, IMU
 - Skyhunter II fixed wing (5 lbs, 40 kts)
 - Pitot probe, PTU, LiDaR, NDIR CO₂, IMU
- **OU** Funjet fixed wing (.2 lbs, 23 kts)
 - Pitot probe, PTU, IMU, IR
 - Iris+ rotor (.75 lbs)
 - PTU, IMU
- **UK**
 - Skywalker fixed wing (7 lbs, 33 kts)
 - 5-Hole probe, IMU, GPS
 - X8 rotor (1 lbs)
 - Multispectral camera, GPS, IMU



- **CU**
 - Tempest/Ttwister* (5 lbs, 43 kts, 15,000')
 - Aeroprobe 5-hole probe
 - Vaisala RS-92 PTH sonde
 - VectorNav 200 IMU
 - Esonde electric field sensor

For additional information contact PI:

Jamey Jacob

405.744.3208

jdjacob@okstate.edu



Propose a Campaign / Need Assistance

- <https://www.arm.gov/research/campaigns>
- Nicki Hickmon
405-761-8189
nhickmon@anl.gov

